Probing the Interstellar Medium Properties in a Morphologically Diverse Sample of Normal Galaxies

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We have used the Infrared Space Observatory (ISO) to observe a variety of ISM diagnostics in about 60 star forming galaxies as part of the Helou et. al "ISO Key Project on Normal Galaxies." Our goal is to characterize the physical properties of the interstellar gas, dust, and radiation field in this sample, and to see how these properties relate to morphological types, luminosities, and other intrinsic properties of sources. We have used the LWS instrument to measure the ionic and atomic fine-structure lines ([CII], [OI], [NII] 122um, [NIII] 57um, [OIII] 88um & 52um) and the continuum emission between 50 and 180um. Here we report on fine structure emission lines observed for a majority of the sample, concentrating on the [CII] and [OI] lines, and comparing these measurements with CO J=1-0 observations taken from the literature and from recent observations by our team. Using photodissociation models, we derive interstellar medium properties including UV illumination of the warm clouds, and characterize the average molecular cloud properties in each source.